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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/836,618	04/16/2001	Lyman Orton	10390-004	8980

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BRENDA HERSCHBACH JARRELL, Ph. D.
CHOATE, HALL & STEWART
EXCHANGE PLACE
53 STATE STREET
BOSTON, MA 02109

EXAMINER

FERRIS III, FRED O

ART UNIT PAPER NUMBER

2128

DATE MAILED: 11/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/836,618	Applicant(s) ORTON ET AL.	
	Examiner Fred Ferris	Art Unit 2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/10/01</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. *Claims 1-10 have been presented for examination based on applicant's disclosure filed on 16 April 2001. Claims 1-10 have been rejected by the examiner.*

Drawings

2. *The examiner has approved applicant's drawings filed on 16 April 2001.*

Claim Interpretation

3. *Applicants are claiming limitations relating to a method and software system for planning land-use where modifications made to the various spatial decision-making software modules are immediately (dynamically) reflected in the other modules. The method steps include the use of a common spatial database and a clearinghouse hub for managing the data module modifications by allowing signaling between the various modules and clearinghouse hub when data modifications have occurred. The examiner has interpreted the claimed dynamic module relationship to be equivalent to well known techniques commonly used in a relational structure, i.e. a structure in which relationships are established between files and information stored in the database. (Microsoft Press Computer Dictionary, Third Edition, 1997) The examiner notes that, as indicated by applicants on page 12, line 22 of the specification, the event-posting architecture in the Integrated Software Suite, which enables the automatic response to changes in the modules, is implemented using "common communications protocol such as DDE, OLE, or object polling methodology" and, hence, would have been*

known to those skilled in the art. The examiner has also interpreted the common spatial database to merely be a global database as would commonly be used in the art for passing update information between modules and files based on the description beginning on page 11, line 10 of the specification. The clearinghouse hub is interpreted as simply performing the task of a module (file) update manager by implementing the necessary signaling between modules when modifications have been made to a data entity and updates are required. This interpretation is based on the description beginning on page 12, line 27 of the specification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
- 4. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Lucas: A System for Modeling Land-use Change", M.W. Berry et al, IEEE**

Computational Science & Engineering, Vol. 3, No. 1, pp. 24-35, IEEE 1996 (of record) in view of U.S. Patent 6,430,694 issued to Hosein et al.

Independent claim 1 is drawn to:

method of interactive/integrated software land-use planning tool for spatial decision making comprising modules where modifications are immediately reflected between modules, by steps of:

- (a) enabling each module to record scenario data modification performed in a common spatial database;
- (b) creating a clearinghouse hub receiving notifications of scenario data modifications from modules and notifying other modules of each scenario data modification;
- (c) enabling each module to immediately inform clearinghouse hub of each scenario data modification performed by that module;
- (d) enabling each module to respond to notification scenario data modification from clearinghouse hub by accessing modified scenario data in common spatial database.

Regarding independent claim 1: Berry discloses the Lucas (Land-Use Change Analysis System) computer based system for land management and impact assessment. The Lucas system disclosed by Berry is an interactive GUI based planning tool (page 30, paragraph 9, Fig. 4) incorporating a spatially oriented database (Fig. 1) that allows a user to create GIS based land-use scenarios (page 32, paragraph 3 to page 34, paragraph 6, Figs. 5-7. pp. 24-35). Berry discloses the elements of the claimed limitations of the present invention as follows:

- enabling each module to record scenario data modification performed in a common spatial database: Berry discloses a common file which manages the scenario information parameters which are commonly stored (recorded). (page 30, paragraph 1, Fig. 3)

Berry does not explicitly disclose a clearinghouse hub (update manager) receiving

communications from modules on data modifications, modules informing the clearinghouse hub of data modifications, or accessing modified scenario data in the common data base. (i.e. implementing the necessary signaling between modules when modifications have been made to a data entity and updates are required

Hosein discloses a method for synchronizing and updating data parameter modifications to modules by implementing the necessary signaling between databases and an update synchronization module for signaling (notifying) when modifications are made and updates required. (Abstract, Summary, Figs. 1-3) As noted above, the examiner has interpreted the function of the clearinghouse hub of the present invention as simply performing the task of a module (file) update manager based on the description beginning on page 12, line 27 of the specification. Hence, Hosein discloses the elements of the claimed limitations of the present invention as follows:

- *creating a clearinghouse hub receiving notifications of scenario data modifications from modules and notifying other modules of each scenario data modification: Hosein discloses an update synchronization module for managing database updates to modules receiving notification of data (parameter) modifications. (CL4-L30-35, Fig. 3)*
- *enabling each module to immediately inform clearinghouse hub of each scenario data modification performed by that module: Hosein discloses enabling notification of updates and data modifications to the update synchronization module as determined by the modified database management software received parameters. (CL4-L30-35, Figs. 2, 3)*

- *enabling each module to respond to notification scenario data modification from clearinghouse hub by accessing modified scenario data in common spatial database: Hosein discloses that each database (module) receives update notification from the update synchronization module from a common update center (i.e. common database). (Fig. 2, CL3-L53-65)*

The examiner again notes that, as indicated by applicants on page 12, line 22 of the specification, the event-posting architecture in the Integrated Software Suite, which enables the automatic response to changes in the modules as performed by the clearinghouse hub, is implemented using “common communications protocol such as DDE, OLE, or object polling methodology” and, hence, would have been known to those skilled in the art at the time of the invention.

It would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to modify the teachings of Berry relating to the Lucas land-use planning and impact assessment tool, with the teachings of Hosein relating to synchronizing and updating data parameter modifications to modules among multiple databases via an update synchronization module, to realize the claimed invention. An obvious motivation exists since, as referenced in the prior art, land-use management has greatly benefited from the use of GIS data (See: Hosein page 34) and relational spatial databases are well suited to use with GIS data (See: Guting, Section 2.5). Further, the level of skill required by an artisan to realize the claimed limitations of the present invention is clearly established by both references. (See: Berry/Hosein, Abstracts) Accordingly, a skilled artisan having access to the teachings of Berry and

Hosein would have knowingly modified the teachings of Berry with the teachings of Hosein to realize the claimed elements of the present invention.

Per dependent claim 2: Berry teaches integration of Geographic Resources Analysis Support System (GRASS) as the GIS component of the Lucas land-use planning system. (page 25, paragraph 2, Fig. 1)

Per dependent claim 3: Berry discloses an Impact Model module for assessing ecological effects, sediment transport, habitat requirements, diversity, etc. (Fig. 1, page 30, paragraph 3)

Per dependent claim 4: Berry discloses the use of Unix-based Silicon Graphics and Sun workstations all of which support 3D graphics. (page 31, paragraphs 1 & 2)

Per dependent claim 5: Berry discloses forecasting via the habitat, economic, and ecological based land-use scenario simulation disclosed on pages 32-34 and in Figures 5-7.

Regarding independent claim 6: As previously cited above, Berry discloses the Lucas (Land-Use Change Analysis System) computer software based system for land management and impact assessment. The Lucas system disclosed by Berry is an interactive GUI based planning tool (page 30, paragraph 9, Fig. 4) incorporating a spatially oriented database (Fig. 1) that allows a user to create GIS based land-use scenarios (page 32, paragraph 3 to page 34, paragraph 6, Figs. 5-7. pp. 24-35). Berry discloses the elements of the claimed limitations of the present invention as follows:

- common spatial database: Berry discloses a common file which manages the scenario information parameters which are commonly stored (recorded). (page 30, paragraph 1, Fig. 3)
- spatial decision making and land-use planning modules: Berry discloses the Lucas systems multiple spatial decision making and land-use planning modules consisting of Socioeconomic model module, Landscape Change module, and Impacts module. (pages 25-29, Fig. 1)

Berry does not explicitly disclose a clearinghouse hub (update manager) receiving communications from modules on data modifications, modules informing the clearinghouse hub of data modifications, or accessing modified scenario data in the common data base.

Hosein discloses a method for synchronizing and updating data parameter modifications to database modules by implementing the necessary signaling between databases and an update synchronization module for signaling (notifying) when modifications are made and updates required. (Abstract, Summary, Figs. 1-3) As noted above, the examiner has interpreted the function of the clearinghouse hub of the present invention as simply performing the task of a module (file) update manager based on the description beginning on page 12, line 27 of the specification. Hence, Hosein discloses the elements of the claimed limitations of the present invention as follows.

- clearinghouse hub receiving notifications of scenario data modifications from modules and notifying other modules of each scenario data modification: Hosein

discloses an update synchronization module for managing database updates to modules receiving notification of data (parameter) modifications. (CL4-L30-35, Fig. 3)

- *each module immediately informs clearinghouse hub of each scenario data modification performed by that module: Hosein discloses enabling notification of updates and data modifications to the update synchronization module as determined by the modified database management software received parameters. (CL4-L30-35, Figs. 2, 3)*
- *each module responsive to notification scenario data modification from clearinghouse hub by accessing modified scenario data in common spatial database: Hosein discloses that each database (module) receives update notification from the update synchronization module from a common update center (i.e. common database). (Fig. 2, CL3-L53-65)*

The examiner further notes that, as indicated by applicants on page 12, line 22 of the specification, the event-posting architecture in the Integrated Software Suite, which enables the automatic response to changes in the modules as performed by the clearinghouse hub, is implemented using "common communications protocol such as DDE, OLE, or object polling methodology" and, hence, would have been known to those skilled in the art at the time of the invention.

It would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to modify the teachings of Berry relating to the Lucas land-use planning and impact assessment tool, with the teachings of Hosein relating to

synchronizing and updating data parameter modifications to modules among multiple databases via an update synchronization module, to realize the claimed invention. An obvious motivation exists since, as referenced in the prior art, land-use management has greatly benefited from the use of GIS data (See: Hosein page 34) and relational spatial databases are well suited to use with GIS data (See: Guting, Section 2.5). Further, the level of skill required by an artisan to realize the claimed limitations of the present invention is clearly established by both references. (See: Berry/Hosein, Abstracts) Accordingly, a skilled artisan having access to the teachings of Berry and Hosein would have knowingly modified the teachings of Berry with the teachings of Hosein to realize the claimed elements of the present invention.

Per dependent claim 7: Berry teaches integration of Geographic Resources Analysis Support System (GRASS) as the GIS component of the Lucas land-use planning system. (page 25, paragraph 2, Fig. 1)

Per dependent claim 8: Berry discloses an Impact Model module for assessing ecological effects, sediment transport, habitat requirements, diversity, etc. (Fig. 1, page 30, paragraph 3)

Per dependent claim 9: Berry discloses the use of Unix-based Silicon Graphics and Sun workstations all of which support 3D graphics. (page 31, paragraphs 1 & 2)

Per dependent claim 10: Berry discloses forecasting via the habitat, economic, and ecological based land-use scenario simulation disclosed on pages 32-34 and in Figures 5-7.

Conclusion

5. *The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Careful consideration should be given prior to applicant's response to this Office Action.*

U.S. Patent 5,818,737 issued to Orr teaches land use and site planning.

U.S. Patent 6,236,907 issues to Hauwiller et al teaches agricultural decision making and mapping scenarios.

U.S. Patent 5,745,751 issued to Nelson et al teaches civil cite planning.

"An Introduction to Spatial Database Systems", R.H. Guting, VLDB Journal 3, pp. 357-399, 1994 teaches spatial GIS databases.

"Spatial Decision Support System for Land Assesment", C. Nehme et al, ACM GIS 99' ACM 1999 teaches agricultural planning.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Ferris whose telephone number is 571-272-3778 and whose normal working hours are 8:30am to 5:00pm Monday to Friday. Any inquiry of a general nature relating to the status of this application should be directed to the group receptionist whose telephone number is 571-272-3700. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jean Homere can be reached at 571-272-3780. The Official Fax Number is: (703) 872-9306

Fred Ferris, Patent Examiner
Simulation and Emulation, Art Unit 2128
U.S. Patent and Trademark Office
Randolph Building, Room 5D19
401 Dulany Street
Alexandria, VA 22313
Phone: (571-272-3778) e-mail : Fred.Ferris@uspto.gov

Fred Ferris
Art Unit 2128

November 14, 2004